Having thus described the preferred embodiments, the invention is now claimed to be:

1. A method for determining an approximation of a first function **(Funct. 1)** from a second function **(Funct. 2)**, where there is a forward solution for calculating the second function from the first function, the first function describing the relationship of a first variable to an independent variable, the second function describing the relationship of a second variable to the independent variable, the second variable being one that is ascertainable, comprising:

a) providing the second function **(Funct. 2)**;

b) applying a shape approach method to produce the approximation of the first function **(Funct. 1)**, which characterizes a similarity of two functions by computing an angle between the two functions when they are treated as two vectors in an n dimensional space where n is a number of data points to produce the approximation of the first function **(Funct. 1)** including:

comparing a shape of the second function **(Funct. 2)** with a shape of a reconstructed second function **(Funct. 2A)** derived from a proposed first function **(Funct. 1a)**, the proposed first function describing a proposed relationship of the first variable to the independent variable;

c). optionally, repeating step b a finite number of times.

2. The method of claim 1, wherein step b) includes:

b1) proposing the first proposed function **(Funct. 1A)**;

b2) applying the forward solution to the first proposed function **(Funct. 1A)** to determine the reconstructed second function **(Funct. 2A)**;

b3) comparing the reconstructed second function **(Funct. 2A)** with the second function **(Funct. 2)** for a set of data from each of the functions.

3. The method of claim 2, wherein step b3) includes:

b3i) generating a first vector **(V1A)** representing, for a plurality of data sets, the change in the reconstructed second function **(Funct. 2A)** between independent variables t_1 and t_2, where independent variable t_2 is spaced from t_1;

b3i) generating a second vector **(V2A)** representing, for a plurality of data sets, the change in the second function **(Funct. 2)** between independent variables t_1 and t_2; and

b3ii) determining an angle **(θA)** between the first and second vectors **(V1A, V2A)**, for the set of data.

4. The method of claim 3, further including:

proposing a second proposed first function **(Funct. 1B)**, the second proposed first function describing a proposed relationship of the first variable to the independent variable;

applying the forward solution to the second proposed first function **(Funct. 1B)** to generate a second reconstructed second function **(Funct. 2B)** ;

generating a third vector **(V1B)** representing, for a plurality of data sets, the change in a second reconstructed second function **(Funct. 2B)** between independent variables t_1 and t_2, in which an angle **θB** between vectors **V1B** and **V2A** is less than **θA**.

5. The method of claim 1, wherein the first function **(Funct.1)** corresponds to a first plurality of values **(S1)** of the first variable as a function of the independent variable and the second function **(Funct. 2)** corresponds to second plurality of values **(S2)** of a second variable as a function of the independent variable.

6. The method of claim 1, wherein the independent variable is time.

7. The method of claim 2, wherein the step of proposing the first proposed function **(Funct.1A)** includes proposing the first variable to be constant with respect to the independent variable.

8. The method of claim 2, wherein the step of proposing the first proposed function (**Funct.1A)** includes accessing a look up table of previously developed relationships of the first variable with the independent variable.

9. The method of claim 2, wherein the forward solution describes a relationship between the first function and the second function.

10. The method of claim 1, wherein the first variable is flux, the second variable is concentration and the independent variable is time.

11. The method of claim 10, wherein the first and second variables are related by the expression:

$$C_z(t) = \int_0^t F(t')\delta(t-t')dt' \qquad (4)$$

where C is the measured concentration expressed as a function of distance z from the source and time;

F (t′) represents the flux at the surface at a time t′, corresponding to the time at which the emitted flux corresponding to the measured concentration was generated; and

δ represents the effect of secretion at a source over a period of time.

12. The method of claim 2, wherein step b3ii) includes:

calculating the dot product of the two vectors **V1A, V2A;**

computing the inverse of the cosine of the dot product divided by the product of the absolute values of the two vectors **V1A, V2A.**

13. A method for determining an approximation of a flux of a species from a source over time from concentration of the species measured a distance from the source over time, comprising:

a) providing a function of the measured concentration over time;

b) proposing a function of the flux over time;

c) applying a forward solution which relates the flux to the concentration to generate a reconstructed function of the concentration over time;

d) comparing the reconstructed function of the concentration with the function of the measured concentration, including:

computing an angle between the two functions when they are treated as two vectors in an n dimensional space where n is a number of data points;

e) modifying the proposed function of the flux over time to provide a second proposed function of flux over time, such that when step d is repeated the angle is decreased in value; and

f) optionally, repeating steps d and e) a finite number of times to derive the approximation of the flux.

14. The method of claim 13, wherein the forward solution is:

$$C_z(t) = \int_0^t F(t')\delta(t-t')dt' \qquad (4)$$

where C is the measured concentration expressed as a function of distance z from the source and time;

F (t') represents the flux at the surface at a time t', corresponding to the time at which the emitted flux corresponding to the measured concentration was generated; and

δ represents the effect of secretion at a source over a period of time.

15. The method of claim 14, wherein δ is derived using the expression:

$$\delta_{z,t} = \frac{1}{\sqrt{\pi Dt}} \exp\left(\frac{-z^2}{4Dt}\right) \qquad (3)$$

where D is the diffusion constant.

16. The method of claim 13, wherein step f) includes repeating steps di) and diii) and e) about 5-10 times.

17. The method of claim 13, wherein step f) includes repeating steps di) and diii) and e) for fewer number of times than is needed to achieve a value of the angle of zero, to minimize the effects of extraneous errors on the flux.

18. The method of claim 13, further comprising:

using a processor programmed with an algorithm to complete at least one of steps a)-f)

19. The method of claim 13, wherein the proposed function of the flux over time assumes the flux is constant with time.

20. The method of claim 13, wherein the source is a monolayer of cells and the species includes an ion.

21. The method of claim 20, wherein step a) includes:

measuring the concentration of the ion over time in a liquid medium at a distance z from the cell monolayer and generating a plot of the measured concentration vs. time.

22. The method of claim 13, wherein the step determining the angle includes:

calculating the dot product of the two vectors and then computing the inverse of the cosine of the dot product divided by the product of the absolute values of the first and second vectors.

23. The method of claim 22, wherein the step of determining the angle includes applying the equation:

θ = arc cos {dot product of vector 1 and vector 2 / [abs(vector 1) times abs(vector 2)]} (7)

where θ is the angle.

24. The method of claim 13, wherein step d includes:

(i) for a plurality of data sets taken from the reconstructed function of the concentration over time, generating a first vector representing, the change in the reconstructed concentration between times t_1 and t_2, where t_2 is spaced from t_1;

ii) for a plurality of data sets taken from the function of the concentration over time, generating a second vector representing the change in the concentration between times t_1 and t_2; and

iii) determining an angle between the first and second vectors for the set of data.